

CLAIMS

1. A hand held device for joining the free ends of thermoplastic material comprising a body including a pair of clamping means, one-half of the pair of clamping means on each side of the body, to hold the free ends in juxtaposition, and to compress the free ends together, including first adjustment means to adjust the distance between the free ends and apply a compressive force between the free ends, and including heating means and means to pass the heating means between the free ends of the thermoplastic material, whereby the heating means is passed between the free ends of the thermoplastic material, thereby softening the free ends of the thermoplastic material, after which the softened free ends are compressed together using the adjustment means to adjust the clamp means towards each other and compress the free ends until the softened free ends fuse together and cool.
2. The device of claim 1 wherein the heating means comprises an electrically conductive member, and a source of electrical energy to pass electricity through and heat the conductive member.
3. The device of claim 2 wherein the conductive member is a ni-chrome wire or pad.
4. The device of claim 2 wherein the source of electrical energy comprises at least one battery.

5. The device of claim 1 wherein the first adjustment means comprises a threaded rod that is securely journaled in the body, that is threaded right and left hand on opposite ends of the threaded rod, each opposite end projecting on opposite sides of the body, and each threaded end received in corresponding right and left hand threads of the pair of clamping means, whereby turning the threaded rod moves the two halves of the pair of clamping means towards or away from each other.

6. The device of claim 1 wherein the clamping means comprises a pair of jaws that are cut out to receive the free ends of the thermoplastic material and wherein the pair of jaws include second adjustment means to enable movement of one jaw relative to the other jaw to clamp the free ends of the thermoplastic material in vice-like fashion.

7. The device of claim 6 wherein the means to enable movement of one jaw of the clamping means relative to the other jaw of the clamping means comprises a threaded screw member that passes through a non-threaded hole in one jaw and is received in corresponding threads in the other jaw, whereby turning the threaded screw member changes the distance between the jaws, and compresses the free ends of the thermoplastic material between the jaws and firmly holds the free ends in vice-like fashion, and where each side of the pair of clamping means can hold the free ends of the thermoplastic material independently.

8. The device of claim 6 further including first guide rods that are securely fixed in one of the jaws, and that pass through a hole in register with the other jaw, to prevent rotation of the jaws around the second adjustment means.
9. The device of claim 6 further including second guide rods that are securely fixed in the body, and project past the body on each side of the body, and corresponding holes in each side of the clamping means, in register with the second guide rods, whereby the clamping means are maintained in register when the first adjustment means is applied, to prevent the two halves of the clamping means from rotating around the first adjustment means.
10. The device of claim 1 wherein a heated wire is held in a wire holding means, which is securely connected to third guide rods, slidingly engaged by the body, whereby the wire holding means, and heated wire, can be pushed or pulled between the free ends of the thermoplastic material and soften the free ends, the third guide rods being in slidable register with corresponding holes in the body of the device.
11. A method of welding together free ends of thermoplastic continuous belt comprising clamping each of the free ends of the thermoplastic belt between a pair of clamping jaws, axially adjusting the distance between each pair of clamping jaws relative to the other, to position the free ends of the thermoplastic belt at a suitable distance to pass a heating means heated by battery power between the free ends of the thermoplastic belt, passing a heating means between the free ends of the thermoplastic belt and

softening the free ends of the thermoplastic belt, and axially compressing the softened free ends of the thermoplastic belt together until they fuse and cool.